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- Impaired 6-hydroxychlorzoxazone elimination in patients with kidney disease: implication for cytochrome P450 2E1 pharmacogenetic studies (Nolin et al). 2003;74:555-68
- Pharmacokinetics**
- Acenocoumarol pharmacokinetics in relation to cytochrome P450 2C9 genotype (Thijssen and Ritzen). 2003;74:61-8
- Altered pharmacokinetics and excessive hypotensive effect of candesartan in a patient with the *CYP2C9\*1/3* genotype (Uchida et al). 2003;74:505-8
- Clinical pharmacokinetics of unbound docetaxel: role of polysorbate 80 and serum proteins (Loos et al). 2003;74:364-71
- Cytochrome P450 3A4 messenger ribonucleic acid induction by rifampin in human peripheral blood mononuclear cells: correlation with alprazolam pharmacokinetics (Gashaw et al). 2003;74:448-57
- Effect of fluconazole on the pharmacokinetics and pharmacodynamics of nateglinide (Niemi et al). 2003;74:25-31
- Effect of rifampin on the pharmacokinetics and pharmacodynamics of gliclazide (Park et al). 2003;74:334-40
- Effects of the neurokinin<sub>1</sub> receptor antagonist aprepitant on the pharmacokinetics of dexamethasone and methylprednisolone (McCrea et al). 2003;74:17-24
- Genetic polymorphisms of the *CYP3A4*, *CYP3A5*, and *MDR-1* genes and pharmacokinetics of the calcineurin inhibitors cyclosporine and tacrolimus (Hesslink et al). 2003;74:245-54
- Influence of *CYP2C9* polymorphisms on the pharmacokinetics and cholesterol-lowering activity of (-)-3S,5R-fluvastatin and (+)-3R,5S-fluvastatin in healthy volunteers (Kirchheiner et al). 2003;74:186-94
- Pharmacokinetic drug interactions in children taking oxcarbazepine (Sallas et al). 2003;74:138-49
- Pharmacokinetics of anakinra in subjects with different levels of renal function (Yang et al). 2003;74:85-94
- Pharmacokinetics of high doses of intramuscular and oral heroin in narcotic addicts (Girardin et al). 2003;74:341-52
- Pharmacokinetics and pharmacodynamics of pravastatin in children with familial hypercholesterolemia (Hedman et al). 2003;74:178-85
- Pharmacokinetics and preliminary clinical data of the novel chemoprotectant BNP7787 and cisplatin and their metabolites (Verschraagen et al). 2003;74:157-69
- Population pharmacokinetics of enfuvirtide in pediatric patients with human immunodeficiency virus: searching for exposure-response relationships (Soy et al). 2003;74:569-80
- Population pharmacokinetics of moxifloxacin in plasma and bronchial secretions in patients with severe bronchopneumonia (Simon et al). 2003;74:353-63
- Phenotype**
- Combined phenotypic assessment of cytochrome P450 1A2, 2C9, 2C19, 2D6, and 3A, *N*-acetyltransferase-2, and xanthine oxidase activities with the "Cooperstown 5+1 cocktail" (Chainuvati et al). 2003;74:437-47
- Plasma**
- Polymorphism in *CYP2C8* is associated with reduced plasma concentrations of repaglinide (Niemi et al). 2003;74:380-7
- Population pharmacokinetics of moxifloxacin in plasma and bronchial secretions in patients with severe bronchopneumonia (Simon et al). 2003;74:353-63
- Polyethylene glycols**
- Disposition of polyoxyethylated excipients in humans: implications for drug safety and formulation approaches (ten Tije et al). 2003;74:509-10 (Letter)
- Polymorphism**
- $\beta_1$ -Adrenergic receptor polymorphisms and antihypertensive response to metoprolol (Johnson et al). 2003;74:44-52
- Effect of the C825T polymorphism of the G protein  $\beta_3$  subunit on the systolic blood pressure-lowering effect of clonidine in young, healthy male subjects (Nürnberg et al). 2003;74:53-60
- Effects of polymorphism in promoter region of human *CYP2A6* gene (*CYP2A6\*9*) on expression level of messenger ribonucleic acid and enzymatic activity in vivo and in vitro (Yoshida et al). 2003;74:69-76
- Genetic polymorphisms of the *CYP3A4*, *CYP3A5*, and *MDR-1* genes and pharmacokinetics of the calcineurin inhibitors cyclosporine and tacrolimus (Hesslink et al). 2003;74:245-54
- The Gly389Arg  $\beta_1$ -adrenergic receptor polymorphism: a predictor of response to  $\beta$ -blocker treatment? (Brodde and Stein). 2003;74:299-302 (Commentary)
- Gly389Arg polymorphism of  $\beta_1$ -adrenergic receptor is associated with the cardiovascular response to metoprolol (Liu et al). 2003;74:372-9
- Influence of *CYP2C9* polymorphisms on the pharmacokinetics and cholesterol-lowering activity of (-)-3S,5R-fluvastatin and (+)-3R,5S-fluvastatin in healthy volunteers (Kirchheiner et al). 2003;74:186-94
- MDR1* and *CYP3A4* polymorphisms among African, Indian, and white populations in KwaZulu-Natal, South Africa (Chelule et al). 2003;74:195-6 (Letter)
- Polymorphism in *CYP2C8* is associated with reduced plasma concentrations of repaglinide (Niemi et al). 2003;74:380-7
- Polysorbates**
- Clinical pharmacokinetics of unbound docetaxel: role of polysorbate 80 and serum proteins (Loos et al). 2003;74:364-71
- Population**
- Population pharmacokinetics of moxifloxacin in plasma and bronchial secretions in patients with severe bronchopneumonia (Simon et al). 2003;74:353-63
- Pravastatin**
- Pharmacokinetics and pharmacodynamics of pravastatin in children with familial hypercholesterolemia (Hedman et al). 2003;74:178-85
- Prescriptions, drug**
- Rational prescribing of essential medicines (Reidenberg). 2003;74:195 (Letter)
- Procetofen**
- Free fatty acid metabolism during fenofibrate treatment of the metabolic syndrome (Vega et al). 2003;74:236-44
- Prostaglandin-endoperoxide synthase**
- Acetofenac spares cyclooxygenase 1 as a result of limited but sustained biotransformation to diclofenac (Hinz et al). 2003;74:222-35
- Prostatic diseases**
- Multiple doses of saw palmetto (*Serenoa repens*) did not alter cytochrome P450 2D6 and 3A4 activity in normal volunteers (Markowitz et al). 2003;74:536-42
- Proteins**
- Clinical pharmacokinetics of unbound docetaxel: role of polysorbate 80 and serum proteins (Loos et al). 2003;74:364-71
- Effect of the C825T polymorphism of the G protein  $\beta_3$  subunit on the systolic blood pressure-lowering effect of clonidine in young, healthy male subjects (Nürnberg et al). 2003;74:53-60
- Public health**
- American Society for Clinical Pharmacology and Therapeutics position statement on the public health risks of ephedra (Hollister and Kearns). 2003;74:403-5 (Commentary)
- Publications**
- Clinical Pharmacology & Therapeutics annual report 2002 (Stein). 2003;74:99-101 (Commentary)
- Good Publication Practice guidelines for clinical trials? (Alfaro). 2003;74:97-8 (Letter)
- Q**
- Quinidine**
- Respiratory and mitotic effects of morphine in healthy volunteers when P-glycoprotein is blocked by quinidine (Skarke et al). 2003;74:303-11



## R

### Race factors

*MDR1* and *CYP3A4* polymorphisms among African, Indian, and white populations in KwaZulu-Natal, South Africa (Chelule et al). 2003;74:195-6 (Letter)

Side effects of opioids during short-term administration: effect of age, gender, and race (Cepeda et al). 2003;74:102-12

### Randomized controlled trials

Randomized concentration-controlled trials: motivations, use, and limitations (Kraiczi et al). 2003;74:203-14 (Commentary)

### Receptors, adrenergic, beta

$\beta_1$ -Adrenergic receptor polymorphisms and antihypertensive response to metoprolol (Johnson et al). 2003;74:44-52

Genotype-dependent time course of lymphocyte  $\beta_2$ -adrenergic receptor down-regulation (Bruck et al). 2003;74:255-63

The Gly389Arg  $\beta_1$ -adrenergic receptor polymorphism: a predictor of response to  $\beta$ -blocker treatment? (Brodde and Stein). 2003;74:299-302 (Commentary)

Gly389Arg polymorphism of  $\beta_1$ -adrenergic receptor is associated with the cardiovascular response to metoprolol (Liu et al). 2003;74:372-9

### Reference pricing; see Drug costs

### Regression analysis

The sense and nonsense of regression modeling for increasing precision of clinical trials (Cleophas). 2003;74:295-7 (Letter)

### Renal failure; see Kidney failure

### Renal function tests; see Kidney function tests

### Repaglinide

Polymorphism in *CYP2C8* is associated with reduced plasma concentrations of repaglinide (Niemi et al). 2003;74:380-7

### Research

Ethical issues in research with healthy volunteers: risk-benefit assessment (Miller). 2003;74:513-5 (Commentary)

### Respiration

Respiratory and mitotic effects of morphine in healthy volunteers when P-glycoprotein is blocked by quinidine (Skarke et al). 2003;74:303-11

### Rifabutin

Severe neutropenia among healthy volunteers given rifabutin in clinical trials (Apseloff). 2003;74:591-2 (Letter)

Severe neutropenia among healthy volunteers given rifabutin in clinical trials (Flexner and Barditch-Crovo). 2003;74:592-3 (Letter)

### Rifampin

Cytochrome P450 3A4 messenger ribonucleic acid induction by rifampin in human peripheral blood mononuclear cells: correlation with alprazolam pharmacokinetics (Gashaw et al). 2003;74:448-57

The effect of age, sex, and rifampin administration on intestinal and hepatic cytochrome P450 3A activity (Gorski et al). 2003;74:275-87

Effect of rifampin on the pharmacokinetics and pharmacodynamics of glimepiride (Park et al). 2003;74:334-40

### Risk factors

American Society for Clinical Pharmacology and Therapeutics position statement on the public health risks of ephedra (Hollister and Kearns). 2003;74:403-5 (Commentary)

Ethical issues in research with healthy volunteers: risk-benefit assessment (Miller). 2003;74:513-5 (Commentary)

Managing risk in healthy subjects participating in clinical research (Stein). 2003;74:511-2 (Commentary)

### RNA, messenger

Cytochrome P450 3A4 messenger ribonucleic acid induction by rifampin in human peripheral blood mononuclear cells: correlation with alprazolam pharmacokinetics (Gashaw et al). 2003;74:448-57

Effects of polymorphism in promoter region of human *CYP2A6* gene (*CYP2A6\*9*) on expression level of messenger ribonucleic acid and enzymatic activity in vivo and in vitro (Yoshida et al). 2003;74:69-76

### Rofecoxib

Celecoxib inhibits metabolism of cytochrome P450 2D6 substrate metoprolol in humans (Werner et al). 2003;74:130-7

## S

### Safety

Disposition of polyoxyethylated excipients in humans: implications for drug safety and formulation approaches (ten Tije et al). 2003;74:509-10 (Letter)

### St John's wort; see Medicine, herbal

### Saw palmetto; see Medicine, herbal

### Secretion

Population pharmacokinetics of moxifloxacin in plasma and bronchial secretions in patients with severe bronchopneumonia (Simon et al). 2003;74:353-63

### Sex

The effect of age, sex, and rifampin administration on intestinal and hepatic cytochrome P450 3A activity (Gorski et al). 2003;74:275-87

Side effects of opioids during short-term administration: effect of age, gender, and race (Cepeda et al). 2003;74:102-12

### Smoked administration; see Administration, inhalation

### Smoking

Effects of cigarette smoking and carbon monoxide on chlorzoxazone and caffeine metabolism (Benowitz et al). 2003;74:468-74

### South Africa

*MDR1* and *CYP3A4* polymorphisms among African, Indian, and white populations in KwaZulu-Natal, South Africa (Chelule et al). 2003;74:195-6 (Letter)

### Substance dependence

Pharmacokinetics of high doses of intramuscular and oral heroin in narcotic addicts (Girardin et al). 2003;74:341-52

### Systole

Effect of the C825T polymorphism of the G protein  $\beta_3$  subunit on the systolic blood pressure-lowering effect of clonidine in young, healthy male subjects (Nünberger et al). 2003;74:53-60

## T

### Tacrolimus

Genetic polymorphisms of the *CYP3A4*, *CYP3A5*, and *MDR1* genes and pharmacokinetics of the calcineurin inhibitors cyclosporine and tacrolimus (Hesselink et al). 2003;74:245-54

### Theophylline

Effect of 2 weeks of theophylline on glucose counterregulation in patients with type 1 diabetes and unawareness of hypoglycemia (de Galan et al). 2003;74:77-84

### Time

Genotype-dependent time course of lymphocyte  $\beta_2$ -adrenergic receptor down-regulation (Bruck et al). 2003;74:255-63

Time course of recovery of cytochrome P450 3A function after single doses of grapefruit juice (Greenblatt et al). 2003;74:121-9

### Tolbutamide

Artemisinin autoinduction is caused by involvement of cytochrome P450 2B6 but not 2C9 (Simonsson et al). 2003;74:32-43

### Type 1 diabetes; see Diabetes mellitus, insulin-dependent

## V

### Vasodilation

Venous response to nitroglycerin is enhanced in young, healthy carriers of the 825T allele of the G protein  $\beta_3$  subunit gene (*GNB3*) (Mitchell et al). 2003;74:499-504

### Vasopressins

Intra-arterial vasopressin in the human forearm: pharmacodynamics and the role of nitric oxide (Affolter et al). 2003;74:9-16

### Venous occlusive disease; see Hepatic veno-occlusive disease

### Verapamil

Multiple transport mechanisms involved in the intestinal absorption and first-pass extraction of fexofenadine (Tannergrén et al). 2003;74:423-36

### Vitamin K

Combined phenotypic assessment of cytochrome P450 1A2, 2C9, 2C19, 2D6, and 3A, *N*-acetyltransferase-2, and xanthine oxidase activities with the "Cooperstown 5+1 cocktail" (Chainuvati et al). 2003;74:437-47

## W

## Warfarin

- Combined phenotypic assessment of cytochrome P450 1A2, 2C9, 2C19, 2D6, and 3A, *N*-acetyltransferase-2, and xanthine oxidase activities with the "Cooperstown 5+1 cocktail" (Chainuvati et al). 2003;74:437-47
- Increased warfarin doses and decreased international normalized ratio response after nationwide generic switching (Halkin et al). 2003;74:215-21

White population; *see* Race factors

Willow bark extract; *see* Medicine, herbal

## X

## Xanthine oxidase

- Combined phenotypic assessment of cytochrome P450 1A2, 2C9, 2C19, 2D6, and 3A, *N*-acetyltransferase-2, and xanthine oxidase activities with the "Cooperstown 5+1 cocktail" (Chainuvati et al). 2003;74:437-47
- Effects of cigarette smoking and carbon monoxide on chlorzoxazone and caffeine metabolism (Benowitz et al). 2003;74:468-74

